



Testing a Remote Sensing based methodology for systematic production of landslides susceptibility maps for Ireland.

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The implementation of a methodology for systematic production of landslide susceptibility maps hasn't been embraced yet in Ireland. The Bréifne Area located in North West Ireland was chosen as a suitable test region for this purpose. Several digital datasets available were tested. B&W orthophotography combined with DEM and digital stereophotography were employed to identify and classify the landslide occurrences. Areas of interest (slope is higher than 15° and surroundings) were systematically surveyed using GIS, 694 landslide occurrences were identified, classified, located, orientated, measured and digitised. They were subsequently grouped in four main landslide types: bedrock slides, peat slides, falls and flows. Fieldwork was carried out to validate, properly categorize and catalogue land movements previously classified using remote sensing techniques. Morphological setting, dimensions of the event, geological setting, impact on the landscape and infrastructure, remedial measures taken and climatic conditions during event were recorded. Six conditioning factors triggering landslides, available as thematic maps for the area, were used for the project: bedrock type, soil parent material, land cover, slope, aspect and elevation. Statistical analysis was applied to determine the influence of each triggering factor on each landslide type. On the resulting susceptibility maps high pixel values indicate high susceptibility to landsliding and low pixel values represent low susceptibility. Error assessment was performed to analyse the correlation between landslides mapped and susceptibility values where this events occurred. There was good correlation between the landslide susceptibility map and the actual mapped events. Integration of additional conditioning factors such as rainfall or structural geology might improve the correlation. The methodology used during this project allows the incorporation of

new datasets to derive the final landslide susceptibility map outputs.

Keywords: Landslides susceptibility, Remote Sensing, Triggering factors, GIS, Ireland.